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Minimizing Avoidable Interruptions During Medication Administration

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Reducing Medication Errors by Addressing Interruptions and Working with Unit Clerks

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Clinical Leadership Theme

This project focuses on the CNL curriculum element of *Care Environment.* The CNL role function is Team Manager. As the CNL, I will be using team resources and serve as the leader on the interdisciplinary team for this project. Utilizing resources available to me, I will be leading the assessment of the medication administration process and the interruptions that occur during this process.

Statement Of The Problem

Medication administration is an important complex process and requires a nurse's full and complete attention in order to prevent any medication errors from occurring. At any health care institution, the medication administration process is vulnerable to errors due to various types of obstacles and distractions. One of the most significant obstacles in the medication administration process are the interruptions a nurse encounters while trying to give medications. Some of these interruptions include phone calls, other patients' needs, and malfunctioning equipment. Interruptions disrupt the nurse's flow of work and thought process. On the unit observed for this project, the most common interruptions are phone calls and waiting for another registered nurse (RN) to cosign a medication. The purpose of this project is to address the interruptions caused by phone calls going to the RN during medication administration. Protecting the process of medication administration means protecting patients.

Rationale

To identify the needs and factors leading to the interruptions, a root cause analysis was done. A series of nurse surveys and medication administration observations were conducted and data from the microsystem assessment, communication assessment, nurse

and patient surveys, and medication administration observations were compiled to conduct this root cause analysis to the problem of interruptions during medication administration. According to the data collected, one of the most prevalent interruptions during medication administration are phone calls. Phone calls include call lights from patient rooms, calls from providers or other services, and calls from outside the hospital. Unit clerks tend to forward or page for nurses right away, whether or not the reason for the call truly requires a nurse.

This institution's data shows that approximately 30% of medication errors are of the "wrong time" type (Cuttler, 2014). Wrong time is defined as passed the one hour allowance before and after a medication is scheduled to be given. This is the most common type of medication error at this hospital. It can be assumed that medications being given at the wrong time can be due to the delays that a nurse experiences when administering medications.

Literature Review

The literature surrounding medication administration and interruptions support the concept that interruptions can lead to medication errors. The National Coordinating Council for Medication Error Reporting and Prevention defines a medication error as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health professional, patient, or consumer" ("About Medication Errors," n.d.). Medication errors can be costly to an institution. The Institute of Medicine Committee estimates that in 2007, adverse drug events accounted for $3.5 billion dollars of additional hospital costs (Ching, Williams, Idemoto, & Blackmore, 2014). According to CALNOC, there are six processes critical to

safe medication administration: compare medication to eMAR at least twice, minimize distractions and interruptions, keep medication labeled throughout process, check two patient identifiers, explain drug to patient as appropriate, and chart immediately after administration (Hardmeier, Tsourounis, Moore, Abbott, & Guglielmo, 2014). The Agency of Healthcare Research and Quality (AHRQ) further describes safe administration to include the following processes: adherence to the "five rights" (right medication, right patient, right dose, right route, right time), barcode medication administration to ensure medications are given to correct patient, minimize interruptions to allow the nurse to administer medications safely, smart infusion pumps for intravenous solutions, and patient education and revised medication labels to enhance patient comprehension of medications and their administration ("Medication errors," 2012). Observations during medication pass have shown to oppose some of these processes, especially when it comes to minimizing interruptions.

During medication administration, interruptions can lead to errors. According to the Colligan and Bass study (2012) where six pediatric nurses were interviewed in depth, when faced with an interruption, nurses assess the priority of the interruption. Factors in this assessment include urgency, risk, and efficiency (Colligan & Bass, 2012). If the interruption can be handled quickly, the nurse will address the interruption and return to medication administration. In general, patient factors or needs are prioritized above all other things (Colligan & Bass, 2012). Nurses pausing their medication pass to address another patient's needs disrupt his/her flow of work and thought process. Medication administration requires a nurse's full focus to ensure dosages and preparations are accurate. The work of Bennett, Dawoud, and Maben (2010)

states that interruptions interfere with a nurse's working memory, which leads to error. The most common type of interruptions include interactions between nurses, interactions with other health care providers, and any malfunction in the equipment used to administer medication, such as computers or scanners (Bennett et al., 2010).

Pediatric patients require special considerations regarding medications. Many medication dosages are dependent on a patient's weight. This requires another level of vigilance and accuracy when administering medications. Hardmeier et al. (2014) states that because of weight-based dosing, lack of alternative drug formulations, or small drug volumes, three times as many adverse drug events are reported in the pediatric population due to medication administration errors. Many institutions require two registered nurses check and sign off on a medication before administering it to a patient. The pediatric unit analyzed in this project has in place a policy that indicates two RNs must verify the dosage and sign off on any weight-based medication before administration. However, obtaining a second RN is another interruption in the medication administration process, as all other nurses may be busy with their own patients and medication administrations. Conroy et al. (2012) states that single RN checks saves time, but reduces the single RN's responsibility and vigilance.

The literature also describes many interventions that are effective in minimizing interruptions during medication administration. Raban and Westbrook (2014) describe the most effective strategy to reducing interruptions include a combination of marked quiet zones for medication preparation, a vest or lighted lanyard worn by nurses to indicate to others not to disrupt the nurse, and triaging phone calls and diverting non-emergency requests to other support staff. The Relihan et al. (2010) study emphasizes

behavior modification lessons and include nurses practicing letting other people know that they are on medication administration and to hold any non-urgent questions until the end. This study also found that patient education about the importance of medication administration and the meaning of the nurse's red vest (Relihan et al., 2010).

Cost-Analysis

According to the Institute of Medicine's report, To Err is Human: Building a Safer Health System (1999), the cost of a medication error is $4700 per hospital admission. Avoiding medication errors can save a single institution millions of dollars. The intervention implemented in this project would not prove to be very costly. The major expense would be in compensating the unit clerks for their time in attending the in-service on how to use the phone call triage tools and practicing with it, and compensating the nurse that would cover the unit clerk while attending the in-service. According to a job posting for a unit clerk position at a northern California hospital, unit clerks earn $26 per hour. For this institution, three unit clerks per unit would be compensated for one hour each of overtime, which is time and a half. This would equal $117 per unit per year, assuming that unit clerks would receive in-services once a year. A nurse would have to cover the unit clerk while he or she would be attending the in-service. According to Indeed.com's latest report in November 2014, registered nurses in northern California earn approximately $50 per hour. To cover three unit clerks per year, this would equal $225 per unit per year. Substituting the nurse with a PCA or another available unit clerk would minimize this expense more. Other minor expenses include paper, printing and copying, the use of a laptop or computer, and utilizing a meeting space with a projector to hold the in-service.

Addressing interruptions during medication administration can also improve the institution's Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. This assessment measures patients' perspectives of their care while in a hospital. In general, higher HCAHPS scores indicate that an institution is providing care that makes a patient feel safe and involved in his/her own care. With the implementation of the Affordable Care Act (ACA), Medicare reimbursement to hospitals is influenced by HCAHPS scores, which is know an "pay-for-performance". Previously, Medicare reimbursed for services, regardless of quality of care or the outcomes. This was known as "fee-for-service". Improving the medication administration process by decreasing interruptions can lead to more time for the nurse to be at the bedside, potentially reducing medication errors, and increasing patient safety. This will lead to higher HCAHPS scores and increased reimbursement to the institution.

Project Overview & Methodology

The site for this project is a large, urban, teaching hospital in northern California. This institution is also a Level 1 trauma center and has a diverse population. The microsystem of focus for this project is a pediatric and adult medical-surgical overflow unit. This unit is dedicated to the care of pediatrics (age 0 to 17 years old) and adult orthopedic, gynecology, and ophthalmology patients. Most pediatric patients are admitted from the pediatric urgent care center, operating room, or the emergency room. Patients may also be transferred from other institutions. On this unit there are registered nurses, physicians, pharmacists, and nurse practitioners that provide care. There are also social workers, dietitians, occupational and physical therapists to support the patients and their families. The unit also has a playroom for the pediatric patients and their family

members. Volunteers from various local universities manage this playroom. Because this institution is a teaching hospital, there are many medical and nursing students on the unit at any time.

There are usually two to three nurses on a shift with one charge nurse, along with one unit clerk and one patient care assistant (PCA). During the time of analysis, patient census ranged from three to eight patients per shift. Sometimes, nurses, the unit clerk, or PCAs may be floated to assist other units. The Charge Nurse may also have one to two patients to care for. There are multidisciplinary rounds twice a week, where all members of the team, including social work, psychiatry, nutrition, nursing, meet with the medical team to discuss patients and how to best support them and their families. The pace of the unit can be slower compared to other medical-surgical units at this institution. However if the patients are acutely ill, three nurses may not be enough to keep up with six to seven patients.

A communication assessment was also completed to understand how the various staff members communicate with each other. On this unit, the noise level is low. The census is usually on the lower end so there are fewer services, which minimizes the noise level. The main source of noise is the alarms and telephone. The manager comes by the unit at least twice during the day shift to check in with the charge nurse on patients, census, and the nursing staff. There is usually the unit clerk or the charge nurse at the nurses' station. Communication regarding updates in protocols, trainings, or other news from administration to the nursing staff occurs through fliers, direct conversation, and email. The manager is very receptive to staff concerns and works very hard to provide what the staff needs. Handoff, or change of shift, report is done face-to-face at the nurses'

station. Charge nurses also have their own handoff report. Nurses communicate with other providers through phone, pager system, text box system on the computers, and fax.

Nurses on this unit make plans for the shift together with patients and their families. If there is a language barrier, RNs utilize either the translator phone or available bilingual staff members to help with communication. Communication is always respectful among patients and staff. The nursing staff is very supportive of each other, always offering to help when a nurse is busy.

Unlike most other medical-surgical units at this institution, medications for all pediatric patients are documented through paper medication administration records (MAR). Medications and patient identification bands are not scanned prior to administration. In order to confirm the patient's identification for medication administration, the nurse verbally verifies the patient's name and birthdate with the patient, or his/her parent/guardian, and compares it with the paper MAR. Medications for all adult patients on this unit are documented through the electronic MAR. Similar to most medical-surgical units at this institution, medications and patient identification bands are scanned before medications are given.

At the beginning of the semester, the institution's operator standard work instruction (OSWI) for medication administration was audited on this pediatric/adult medical-surgical unit (Appendix A). This document outlines the necessary steps to medication administration to ensure the process is safe and to prevent errors. For purposes of this project, the medication administration process begins when a nurse decides to begin his/her medication pass for a patient and ends when the nurse has documented the administration and exits the patient's room. An interruption is defined as

any event, barrier, or obstacle that keeps the process of medication administration from continuing through to the end.

To begin, a preliminary round of surveys were given to nurses on this unit to obtain general attitudes towards medication administration. In addition to that, the OSWIs were audited and nurses were observed during medication administration to see what steps of the OSWI were completed and not completed, the duration of each step, and the duration of the whole medication administration process. The duration of an interruption was also recorded. These initial results from the surveys and audits were presented to the institution's administration and analyzed to determine next steps. It was observed that interruptions during medication administration were most concerning to nurses and it was then determined that interruptions would be further examined and addressed.

A second round of surveys were administered for nurses and patients on this unit. The nurse survey was more detailed and addressed in much more depth the causes of interruptions, how nurses address these interruptions, and the nurse's thoughts on solutions (Appendix D). During this round of surveys, nurses from day and night shift were included. The OSWI was also audited again for whether or not a step was completed and the duration and reasons for interruptions only. The results were gathered to determine commonalities and themes in the interruptions. It was determined from surveys and observations that phone calls were the most common interruptions on this unit and that the unit clerk played a vital role in assisting to minimize interruptions during medication administration.

On this unit, the unit clerks or charge nurses usually answers the phone. Phone calls may include calls from the patient rooms (call lights) or from an outside line, such as a provider from elsewhere in the hospital, laboratory, or family members calling about a patient. When a call arrives at the nurses' station, the unit clerk answers the phone and immediately pages the appropriate nurse on the overhead announcement system. Many times, this causes the nurse to stop what he or she is doing in order to answer the phone call. This interruption leaves the medication administration process vulnerable to errors that may reach the patient. It also frustrates the nurse because it interrupts his or her own flow of work and thought process. Another common interruption on this unit is another service provider interrupting the nurse during a medication pass. Many times, they approach the nurse to give an update on a patient or to ask a question. This, too, leaves the medication administration process vulnerable to errors and disrupts the nurse's flow of work and thought process.

It was determined that a process of triaging phone calls, along with complementary education, was needed for the unit clerks. The duties of the unit clerks are variable and vital to keeping a unit running efficiently. Unit clerks are at the center of the unit, connecting nurses to other services, ensuring that orders are placed in the appropriate patient charts, that supplies are refilled, and answering phone calls. Unit clerks are an important key to the success of a unit, so it is just as important to include them in this process of reducing medication errors.

Three tools were developed to assist the unit clerk in taking and triaging phone calls. The first tool is an algorithm ("Unit Clerk Algorithm," Appendix F), with scripting, to guide the unit clerk in triaging call lights from patient rooms ("call light") and outside

phone calls (“phone call”). Any emergency issues would be passed to the charge nurse or the patient’s primary nurse. Emergency issues would include critical lab values or a medical emergency response team (MERT) calls. Additional emergent issues may be added based on the feedback of the unit’s nurses and nurse manager. Non-emergency issues, such as a patient asking for water or a family member calling for an update on their patient, would be tabled and the unit clerk would take a message. Messages at the end of medication administration would be passed along to the appropriate nurse. The second tool is a sheet to document the messages the unit clerk would take during medication pass (“Message Sheet,” Appendix G). The third tool is an optional sheet for nurses to indicate if and when he/she has started the medication administration process. This sheet would be placed at the nurses’ station and the nurse would simply check the box indicating that he/she is on a medication pass. Once the medication pass was completed, the nurse would check the box that he/she is no longer on medication pass. The unit clerk can refer to this sheet to see if a nurse has begun or completed a medication pass (“Nurse Med Pass Sign-Up Sheet,” Appendix H). Lastly, a script was developed for unit clerk’s to announce on the overhead announcement system the beginning and ending of medication administration (“Unit Clerk Med Pass Script,” Appendix I). This announcement is to help in alerting all staff and patients on the unit that medication administration has begun and to refrain from disrupting the nurses as much as possible, and when medication administration has ended, that the nurses were now more available.

Prior to implementation of the tools, pre-intervention data was collected. Unit clerks were observed during morning medication administration. Because this unit is a

pediatric unit, medication administration times vary much more than adult medications. The time of 8:00AM to 10:00AM was selected because most medications are given at this time on this unit. The unit clerk was observed during this time for number of phone calls arriving on the unit, who and what the phone call was for, and if the nurse was paged. As the data collector, I sat next to the nurses' station, within view of the phone and unit clerk, but out of the way of others utilizing the space. The following week, in collaboration with the unit manager, the unit clerk was given a short in-service on how to utilize the algorithm and other tools. A few days later, post-intervention data was collected at the same time, in the same manner, for the same parameters. Data was collected on the "Pre- & Post-Intervention Unit Clerk Audit" (Appendix K). Resulting data was utilized for evaluation and developing recommendations.

The change theory utilized in this project is Lippitt's Phases of Change Theory. Lippitt created a seven-step theory that focused on the change agent, versus the change itself, which was the reason for selecting this theory. I, as the CNL on the unit, am the change agent responsible for assessing, diagnosing, implementing, and evaluating the change. Below are the steps to Lippitt's theory (1958):

1. Diagnose the problem.
2. Assess the motivation and capacity for change.
3. Assess the resources and motivation of the change agent. This includes the change agent's commitment to change, power, and stamina.
4. Choose progressive change objects. In this step, action plans are developed and strategies are established.
5. The role of the change agents should be selected and clearly understood by all

parties so that expectations are clear.

6. Maintain the change. Communication, feedback, and group coordination are essential elements in this step of the change process.

7. Gradually terminate from the helping relationship. The change agent should gradually withdraw from their role over time. This will occur when the change becomes part of the organizational culture (Lippitt, Watson and Westley 58-59).

This theory also shows that changes are more likely to remain stable if other parts of the system also are positively affected by the change. This means that other units can adopt this intervention can experience similar positive results. Due to time constraints, steps six to seven could not be fully carried out. Utilizing this theory left the CNL with most of the responsibility of instituting the change.

Timeline

The project began in late August 2014 and concluded in the middle of November 2014. Refer to Appendix C for Gantt Chart. One challenge with this timeline included preparing for the National Council Licensure Exam (NCLEX) while completing this project. Another challenge was ensuring information was being shared and received in a timely manner. For example, receiving feedback from hospital administration took more time than expected, resulting in delaying components of the project.

Expected Results

The resulting nurse surveys shed a lot of light on their perceptions of interruptions during medication administration (Appendix J). One idea these surveys revealed is that although interruptions are not as common on this unit, when they occur, they can be very frustrating. One nurse shared that because of paper orders and miscommunication with

the pharmacy she ended up waiting approximately an hour and a half for an antiemetic medication for a patient. Another surprise from the survey was that most of the nurses from this unit felt a culture change was needed to reduce interruptions. This showed me that it is not just the equipment or the phone calls that cause interruptions, but an attitude or culture that nurses and other staff have toward medication administration. Another thing I discovered is that this institution has nothing formal in place to protect the medication administration process. The only thing in place are signs in front of the medication rooms that instruct people to not disturb the nurses inside or that only one person is allowed in the medication room at a time.

My expected results are an increase in phone calls being triaged according to the algorithm and a decrease in nurse interruptions due to phone calls that are not emergent. Prior to introducing the intervention to the unit clerks, during the 8:00AM to 10:00AM medication pass time, ten phone calls arrived to the unit, eight of which were triaged correctly. Two calls were not triaged correctly and the unit clerk paged the nurse for a non-emergency issue, thus interrupting the nurse during medication pass. After the intervention was introduced to the unit, during a 8:00AM to 10:00AM medication pass time, 11 phone calls arrived to the unit. Ten of the phone calls were triaged according to the algorithm and one phone call was not. The resulting data shows that prior to the intervention, 20% of phone calls were not triaged correctly and after the intervention, only 9% of phone calls were not triaged (Appendix J). This small improvement proves that such an intervention can be beneficial to the medication administration process.

Evaluation

The intervention implemented on this unit showed a small positive change, which gives a lot of hope and opportunity to this intervention. However, there were a few alterations to the original intervention that occurred on this unit. One alteration was that the unit clerk did not announce the beginning or the end of the medication administration time. This was in part due to the variability in medication times for the patients. This was also because of the low census during pre-intervention and post-invention data collection times (six and seven patients, respectively). Another alteration was that the unit clerk did not utilize the message sheet or the nurse med pass sign-up sheet. Again, this was due to the small census and low number of nurses on the unit. The unit clerk felt it was not necessary to utilize the tools since she could keep track of messages and who was on medication pass.

There was some hesitation from the unit clerks and nursing staff in utilizing the tools. The unit clerks felt that the nurses should take more responsibility in letting unit clerks know when they were on a medication pass and that they could not be interrupted. Some unit clerks felt that it was not their responsibility to triage phone calls, just answer them. Other unit clerks felt positive about this intervention and that it could be help the nurses and the unit as a whole. Nurses also had varying feelings toward the new system. Some nurses felt overwhelmed with the new tools and felt it was more work for them. Other nurses felt that this small change would help them a lot in their medication pass.

While the interventions targeting unit clerks and phone calls can be helpful in reducing interruptions, it is not the only solution. In order to truly be able to minimize interruptions, phone call triaging should be combined with a few other recommendations.

These recommendations are medication vests worn by nurses during medication administration, an in-service simulation for nurses to practice asserting themselves to others that they are on a medication pass, signage and a short information session for other disciplines and staff to understand what the medication vests mean and the importance of not interrupting a nurse on a medication pass, and an educational pamphlet for patients and their families.

The medication vest would be in a bright color and would be worn by nurses while on a medication pass. The bright color would be easily seen and would indicate to other people around that he/she is on a medication pass and to refrain from disrupting him/her, unless it is urgent. This institution is currently utilizing Lean principles to improve their processes on all units and environments. Lean concepts are most commonly associated with Toyota's production systems and focuses on doing more with less, distinguishing value-added steps from non-value-added-steps, and eliminating waste (Womack, Byrne, Flume, Kaplan, & Toussaint, 2005). Medication vests are an example of andon, a Lean concept that means a visual control system that reflects the status of a process or worker (Ching, Long, Williams, & Blackmore, 2013). The bright vest indicates that a worker, in this case the nurse, is in the middle of a process, which is the medication pass and the nurse should not be interrupted.

An in-service for nurses would include educating nurses with scripts on how they can assert themselves to other staff members that they are on a medication pass and they cannot be interrupted. There would also be simulations for nurses to practice their scripts. While many nurses are already comfortable with this, this will empower the nurses who are not as comfortable to start the much-needed dialogue with staff about medication

safety and why the vest is worn. The simulations will give the nurses the chance to practice the language and ensure that it is assertive, yet respectful (Freeman, Lee-Lehner, & Pesenecker, 2013). Kliger (2010) states that more experienced, senior nurses see medication administration process as a task that is routinely performed and can be done while doing other things. This attitude may have helped foster a culture where interruptions are accepted. The simulations the nurses work through should help them experience real life situations and practice the language to change this culture.

Signage and a short education session with other disciplines and staff will help all other people in the hospital understand the meaning of the medication vests and the importance of medication safety (Freeman et al., 2013). The educational session can be a short "elevator speech" that introduces the concept of the vests and how interruptions disrupt a nurse's thought process (Kliger et al., 2009). Signs would feature a picture of a nurse wearing a vest, times of medication pass, and some information about why it is important to not disrupt the nurse during this time. Again, this will further influence the culture regarding medication administration, but from a perspective outside of the nurses'. Physicians, physical and occupational therapists, and other services must also believe in the importance of protecting the medication administration process, so relating it to their own work may also help change their habits. Patient and family education would ensure that they know when medication administration times are and what the vests mean (Freeman, et al., 2013). It should also be clear on the brochure that when nurses are on a medication pass and wearing the vests, patient and families are encouraged to ask their nurses questions about their medications and that the vests are not

for silencing them. Patients should still feel comfortable with calling their nurses for emergent issues.

The final recommendation is to improve staffing on this unit. After numerous conversations with staff nurses, the most common, and seemingly most frustrating, contribution to interruptions is inadequate staffing, for both day and night shifts. Many times, the unit clerk or PCA will be floated to another unit, leaving two to three nurses on the unit. One of these nurses would serve as the Charge Nurse and have one to two patients for him or herself to care for. The lack of a unit clerk or PCA, and sometimes both, leaves the staff nurses to complete all the work on the unit, from administrative duties to patient care. Another common cause for interruptions is finding another nurse to cosign medications. Because this is a pediatric unit, many medications are weight-based and require a second registered nurse to verify the dosage and cosign before the medication can be given. The lack of staff leaves a nurse waiting around for an available nurse to cosign. According to nurse feedback, nurses may wait for ten to 15 minutes for another nurse to cosign. Staff improvements, such as ensuring a unit clerk or PCA stays on the unit for the whole shift, can be very helpful to the nurses.

Nursing Relevance

Improving the process of medication administration by reducing interruptions has numerous implications for the nursing profession. This will allow nurses to provide a higher quality of care in a timely manner. Freeing the nurse from non-emergent phone call will give the nurse the opportunity to spend more time on other important things, such as being at the bedside to educate and discuss with patients and their families about their medications. Involving other staff and disciplines in this process will encourage

more collaboration and dialogue between each other. There will also be more transparency about each other's work. Many times, nurses are blamed for any errors with medications, because nurses are at the "sharp end" of patient care. However the work of Westbrook, Ampt, Kearney, and Rob (2008) states that the entire professional medical, nursing, and administrative team should be held accountable for any error in medication administration.

After completion of the final post-intervention observations, a copy of the unit clerk phone triage package (algorithm, message sheet, nurse med pass sign-up, and script) was left with the unit, and all other medical-surgical units at the institution. Standardizing this process for unit clerks across all medical-surgical units will hopefully be helpful when this institution moves into its new building late next year in 2015. Since the new building will have a different structure and potentially new patient care models, unit clerks may have to be moved around. Ensuring that all unit clerks from all units are educated on the same protocol for triaging phone calls will ensure its sustainability for the years to come.

Conclusions

One major challenge of this project was ensuring my goal for this project aligned with that of the hospital administration's goals. It seemed that hospital administration wanted to address the issue of scripting during medication pass. As the CNL with more information about what the nurses' were really struggling with, I knew the project had to be redirected to better suit the needs of the nurses. Another challenge was narrowing down the intervention to be implemented. I originally wanted to implement more interventions, but had to scale down to make it more feasible for the time and resources I

had available to me. While many unit clerks and staff members were cooperative and open to my intervention, the challenge was getting all unit clerks and nursing staff on board. Many of the unit clerks have worked at this institution for many years, thus validating their expertise. It was challenging to ask them to change their practices. Part of this was due to the fact that as a student, I was not present on the unit 40 hours a week, like a regular employee. Many of the unit clerks were very much set in their ways, knowing that the way they have done things has always worked for the unit. Many unit clerks felt it was not their responsibility to take the extra step in triaging phone calls and ask what the reason for the phone call was. This may have been a result of how the unit clerk culture was fostered. They may have never been educated on how to triage phone calls or encouraged to do so.

Another challenge was the small size of the unit. The census was usually low; at one point, the unit was closed because there were no patients. A low census also meant there would be fewer nurses on the floor, which made it difficult to survey and observe nurses. The variability in the census also made it challenging to assess interruptions in medication passes. Another obstacle was the variability in medication administration times. Pediatric medications do not have the more formalized, set times that adult medications do, so it was more difficult to assess time frames that had a high volume of medication passes. Lastly, another challenge was time. Three to four months was not enough time to fully assess, diagnose, plan, intervene, and evaluate. If given more time, I would survey more night shift nurses, spend more time on the unit during the day and night shifts, and collect more data prior to and after the implementation of the intervention. One step I wish we would have taken was surveying and assessing the unit

clerks for their perception and understanding of their role on a unit during medication administration. Having this information earlier in the process may have changed what our intervention was or our approach to implementing the intervention. Another step I would have taken was looking more in depth into this hospital's process for reporting medication errors. In order to understand how and what kind of medication errors are happening, we need to know that they are all being reported honestly and that the hospital's culture fosters reporting errors. This culture should also emphasize that the purpose of reporting is not to punish or reprimand employees, but to improve systems.

I have learned and realized so much during the process of this project. One thing I realized is how challenging it can be to convince other people the importance of having a CNL in a microsystem or institution. While many people on my unit supported me in my learning as a nursing student and a CNL, I felt they still did not comprehend what a CNL's scope of practice truly is. I also learned how challenging, yet rewarding, the work of a CNL is. A CNL must be in tune with many facets of a unit, understanding who is who and how processes work. Being at a hospital undergoing so much change and transition made it challenging to keep up. A CNL must also learn who are the champions and advocates a CNL wants on their side. All this takes time and a great amount of networking. I also learned that there will always be medication errors and interruptions. My job as a CNL is to minimize these errors so that no harm to the patient or staff is done. From observing many medication passes on this unit and other medical-surgical units at this institution, I am further realizing that mistakes or any negative events that happen on a unit are not to be blamed on a single person, such as a nurse or a staff member. These mistakes are a result of a flawed or broken system.

The most important thing I learned is that in order to be a CNL that staff members respect and trust in, you have to spend your time on the unit, understanding the work of frontline staff. Not only should you understand what the staff nurses do, but you should also know what PCAs, unit clerks, nurse managers, and janitorial staff do. All of these people do vital things for a unit, so it is important to know and respect their work, and take it into consideration when developing your interventions.

I want to thank and acknowledge my preceptor and all the staff of the unit I worked with. It was a pleasure learning from all of them. It was an honor to be given the opportunity to practice CNL work with them at this institution. I also want thank T. Gallo for her guidance and support during project.

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Appendix A

Operator Standard Work Instruction (OSWI)
Page 1

rona consulting group — operator standard work instruction

Title: Inpatient Med/Surg Workflow for Medication Administration	Date: 09/22/14
Departments who must adopt: Med/Surg inpatient units, (ICUS?)	Operators who must adopt: RNs

Task #	Task description (include handoffs TO, and signals FROM, other staff, to complete task)	Task time
1	Verify relevant information (i.e. pain scores, vital signs and other needed clinical information) prior to entering medication room	1:30
	All Steps below take place in the med room	
2	Enter the medication room and sanitize/wash hands	0:45
3	Select all medication(s) in Omincell, verify against MAK	2:00
4	Remove medications from Omnicell, verify using the "five rights" (right patient, medication, dose, route and time)	1:00
5	Waste partial medication doses before leaving the med. room and cosign if necessary (i.e. narcotic waste, high-risk medications)	1:00
6	Label any medication that is not administered in its original container/syringe	0:30
	All Steps below take place at the patients side	
7	Enter patient's room and sanitize/wash hands	0:20
8	Verbally confirm patient's name, DOB and any medication allergies against the MAK	1:00
9	Remind the patient: "for your safety, we will be asking for this information every time we give you any medications."	0:15
Takt time:	***Cycle time:*** (enter observed cycle time or sum task times)	

NOTE: Pictures showing the appropriate actions in sequence and by step are strongly encouraged. Attach as needed.

Sponsor/process owner:	Origin:	Version number:

 Page ___ of ___

Appendix A

Operator Standard Work Instruction (OSWI)
Page 2

rona consulting group — operator standard work instruction

Title: Inpatient Med/Surg Workflow for Medication Administration	Date: 09/22/14
Departments who must adopt: Med/Surg inpatient units, (ICUS?)	Operators who must adopt: RNs

Task #	Task description (include handoffs TO, and signals FROM, other staff, to complete task)	Task time
10	Scan patient's barcoded ID AND medication(s) to confirm the "five rights" (right patient, medication, dose, route and time)	1:00
	Use of bar code scanning is not "optional" unless the medication is not bar coded. The order in which you scan does not matter, but BOTH the patient and medication(s) MUST be scanned BEFORE administration.	
11	Open and administer medications in front of the patient	1:30
12	Educate the patient: Include medication name, indications, and side effects. *(see sample script attached)*	5:00
	Remind Patient: It is important to SFGH that you always know and understand the medications you are taking and their side effects. Use teach-back to confirm understanding. Once the patient has received the medication and education several times, the patient should be able to provide the medication information independently.	
13	Ensure patient ingests the medications in your presence	0:20
14	Enter additional relevant information and then click "Chart" in LCR	1:30
15	Perform hand hygiene when you exit the patient's room	0:15
Takt time:	*Cycle time:* (enter observed cycle time or sum task times)	

Complete the Operator Standard Work Instruction (OSWI) Sheet as follows:

NOTE: Pictures showing the appropriate actions in sequence and by step are strongly encouraged. Attach as needed.

Sponsor/process owner:	Origin:	Version number:

Appendix A

Operator Standard Work Instruction (OSWI)
Page 3

rona consulting group — operator standard work instruction

1. Preparation. Meet with people in the workplace and explain that you are documenting standard work to increase patient safety and satisfaction and to make the work easier for clinicians and staff members to remember and perform right the first time.
2. Header information. Complete the header of the form (from left to right).
    a. Title. Enter the title of the standard work instruction (OSWI). (The title normally identifies the scope of the work and who will perform it.)
    b. Date: Enter the date that the OSWI was implemented.
    c. Departments who must adopt: Enter the name or names of the departments within the organization that are required to adopt this standard work.
    d. Operators who must adopt: Enter the names of the positions of clinicians and/or support staff who are required to adopt this standard work.
3. In the body of the OSWI:
    a. Task no. Enter the number of each task in the process, in sequence.
    b. Task description. Clearly describe each task to be performed. Include a list of equipment, tools, supplies or other job aids required. Highlight quality or safety checks built into the process. The description should be succinct yet sufficient to conduct an effective in-service training.
    c. Task time. Enter the standard task time (normally in seconds) for each task.
    d. Takt time: Enter the takt time for the operation.
        takt time = time available / average demand.
    e. Cycle time: Enter the observed cycle time or sum all task times.
4. Photographs. Photographs showing the appropriate actions in sequence may be attached to the OSWI as needed.
5. Footer information.
    a. Sponsor/process owner: Enter the name or position of the sponsor and/or process owner.
    b. Origin: Record the origin of the standard work (kaizen workshop, 3P workshop, suggestion system, etc.).
    c. Version number. Enter the version or revision number of the standard work.

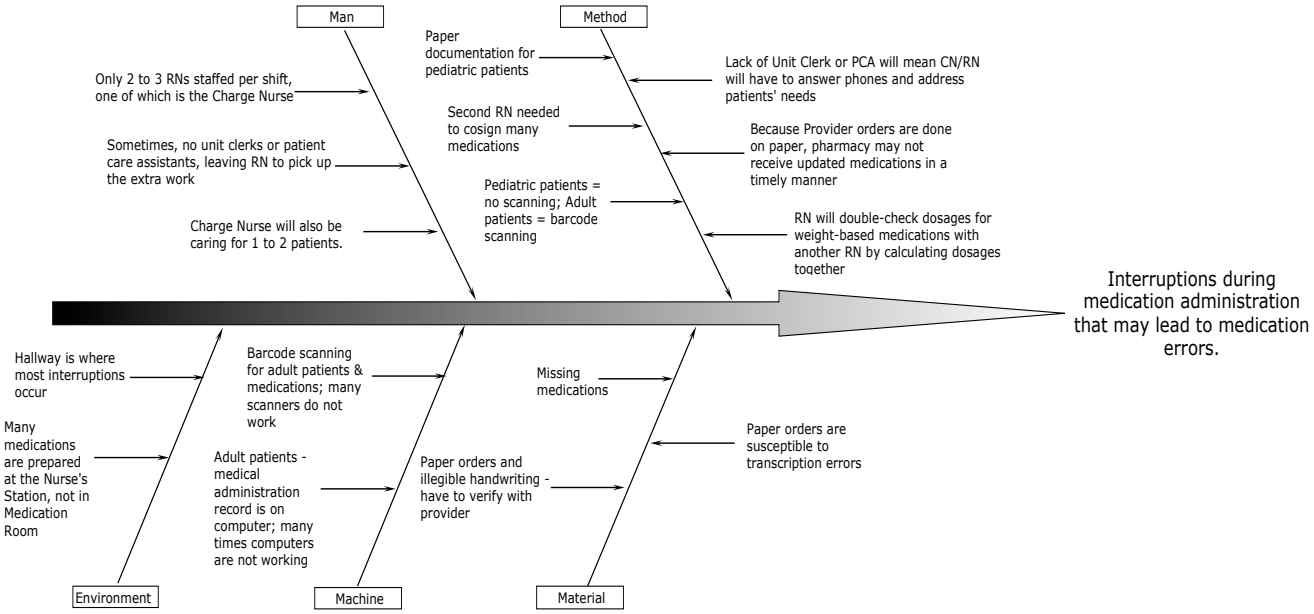
NOTE: Pictures showing the appropriate actions in sequence and by step are strongly encouraged. Attach as needed.

Sponsor/process owner:	Origin:	Version number:

 Page ___ of ___

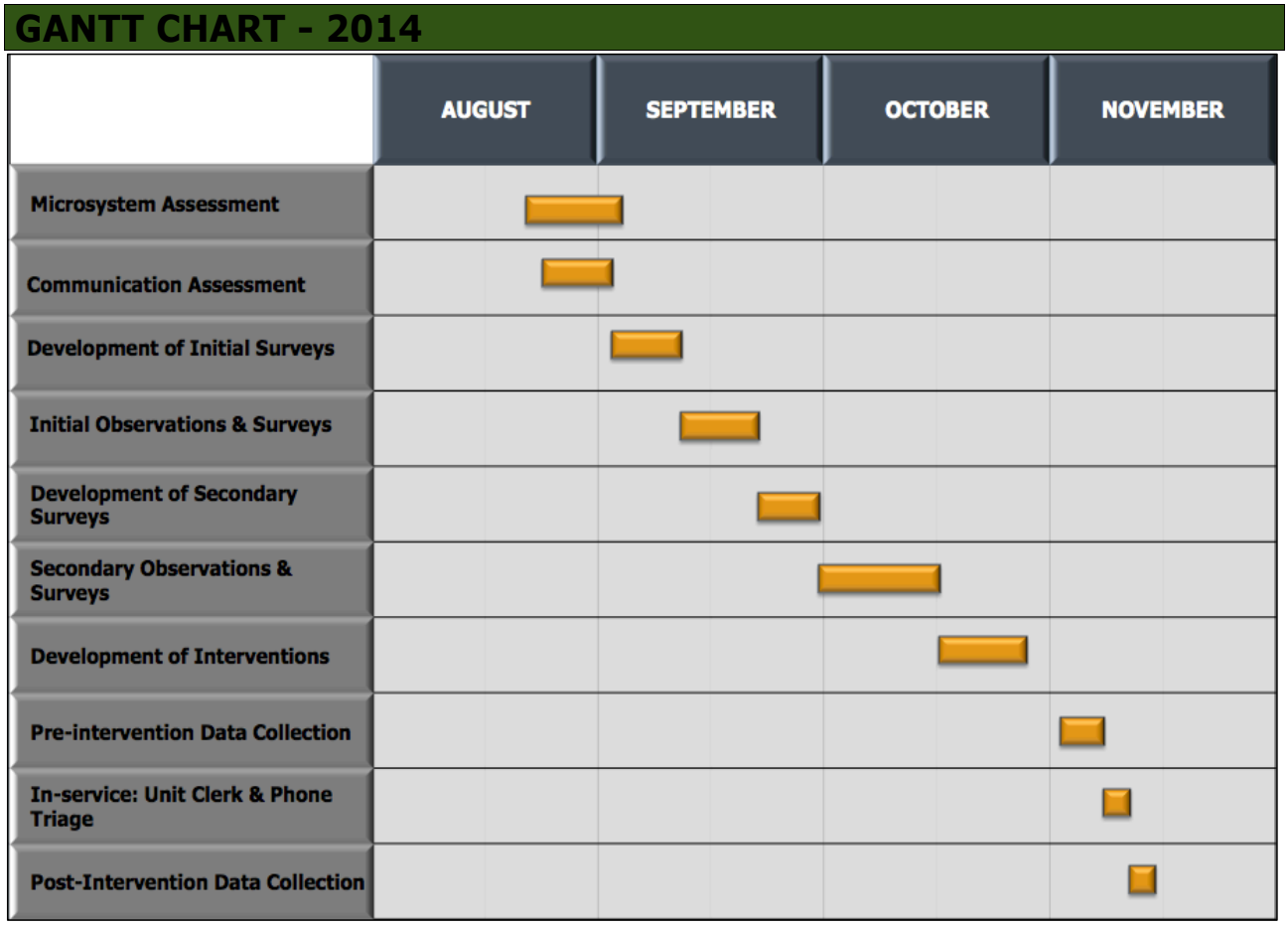
Appendix B

ROOT CAUSE ANALYSIS
FISHBONE



Appendix C

GANTT CHART



Appendix D

SECONDARY NURSE SURVEYS

Medication Administration – 6A

NURSE Questionnaire (*please add any comments on the back of this page*):

1. How often are you interrupted during each medication administration?
Interruption = stopped, faced with a barrier
□ Always(90-100%) □ Usually (45-89%) □ Sometimes (1-44%) □Never (0%)

2. What are the barriers or interruptions you face while administering medications? *Select all that apply:*

- ☐ Another nurse needs assistance
- ☐ Phone calls
- ☐ Waiting in line for med room
- ☐ Waiting for doctor/pharmacy
- ☐ Other patient needs attention
- ☐ Equipment not working/cannot be found
- ☐ There are no interruptions
- ☐ Other: _____

3. What do you do when you encounter an interruption or barrier during medication administration? *Select all that apply:*

- ☐ Scanner doesn't work: _____
- ☐ Patient doesn't have a wristband:
  _____
- ☐ Medication isn't
  available:_____
- ☐ Other:
  _____

4. Where do interruptions occur the most? *Select all that apply:*

- ☐ Medication room
- ☐ Hallway
- ☐ Patient's room

5. What would prevent interruptions or barriers during your medication administration? *Select all that apply:*

- ☐ Additional equipment (EX: more COWS, scanners, dinamaps, etc)
- ☐ Improved equipment (EX: scanners, RN anywhere, functional COWs)
- ☐ Provide support for nurse-led patient education and teach-back (EX: written, audio, visual aids)
- ☐ Better or more direct communication with Pharmacy
- ☐ Better or more direct communication with PCP
- ☐ Improved staff culture regarding med pass (coworkers choosing to respectfully not interrupt you during med pass)
- ☐ Wearing medication vest, sash or button during medication administration to alert others to not interrupt.
- ☐ No improvements are needed for the medication administration process

Appendix D

SECONDARY NURSE SURVEYS

6. Which part of the medication administration process is most time-consuming? What are some ways to improve those time consumptions?

7. What are some strategies or solutions to encourage no talking or interruptions in the med room?

8. What are some strategies or solutions to prevent *any* interruptions during the med pass (from the time you decide to give meds to walking into the patient's room to deliver them)?

Thank you for your input and help! I hope to take your comments and help in improving medication administration for you!

Jaleel Anne A. Arnado, RN
USF CNL Student

Appendix E

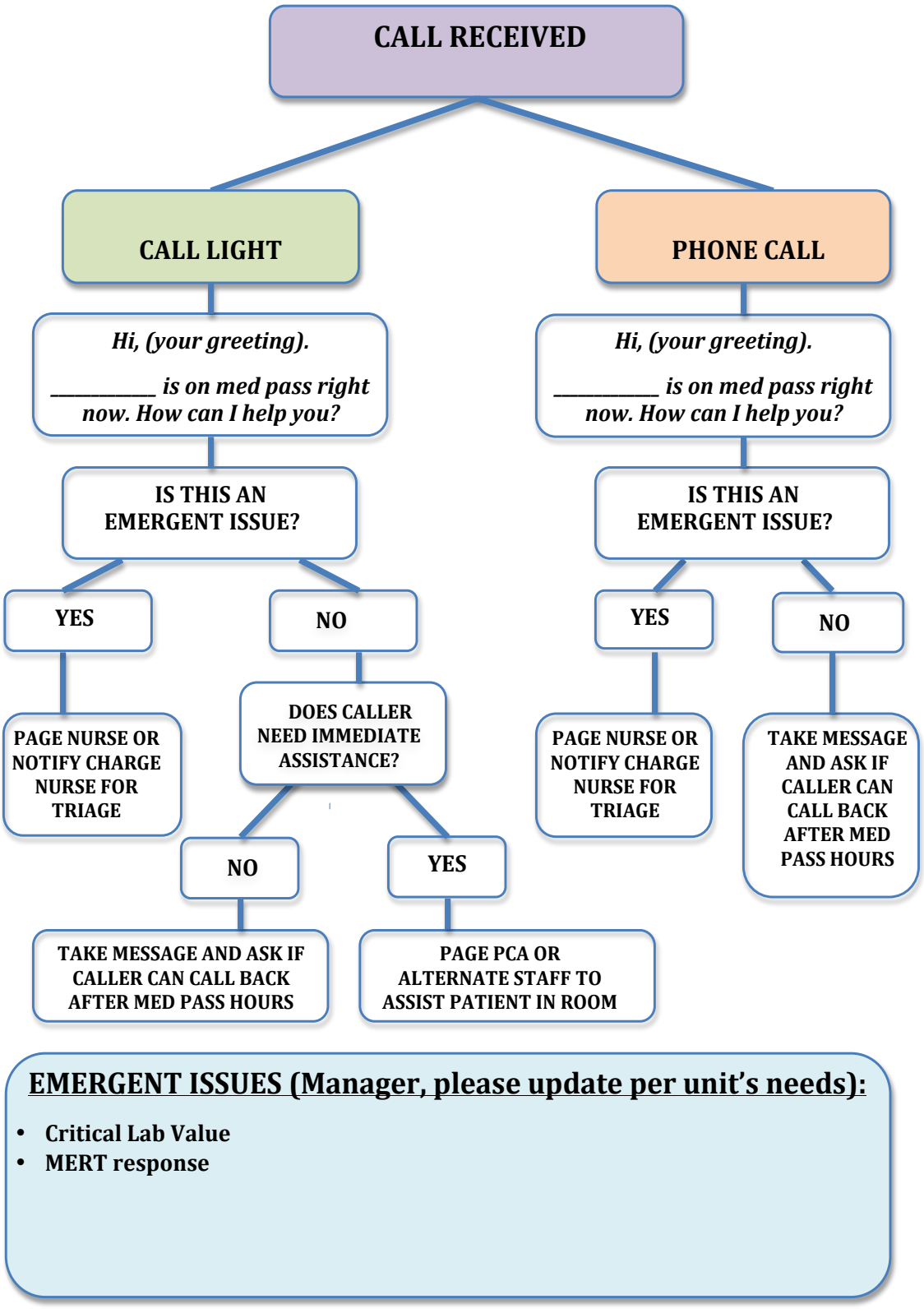
SECONDARY NURSE MEDICATION OBSERVATION AUDIT

DATE/TIME: UNIT:
AM/PM SHIFT: MED PASS: _____OF_____ TOTAL # OF PTS:

COMPLETED? Y/N/NA	TASK	# OF INTERRUPTIONS	TOTAL TIME OF INTERRUPTIONS	COMMENTS
	Verify relevant information (i.e. pain scores, vital signs and other needed clinical information) prior to entering medication room			
	Enter the medication room and sanitize/wash hands			
	Select all medication(s) in Omnicell, verify against MAK			
	Remove medications from Omnicell, verify using the "five rights" (right patient, medication, dose, route and time)			
	Waste partial medication doses before leaving the med. room and cosign if necessary (i.e. narcotic waste, high-risk medications)			
	Label any medication that is not administered in its original container/syringe			
	Enter patient's room and sanitize/wash hands			
	Verbally confirm patient's name, DOB and any medication allergies against the MAK			
	Remind the patient: "for your safety, we will be asking for this information every time we give you any medications."			
	Scan patient's barcoded ID AND medication(s) to confirm the "five rights" (right patient, medication, dose, route and time)			
	Open and administer medications in front of the patient			
	Educate the patient: Include medication name, indications, and side effects.			
	Remind Patient: It is important to SFGH that you always know and understand the medications you are taking and their side effects. Use teach-back to confirm understanding. Once the patient has received the medication and education several times, the patient should be able to provide the medication information independently.			
	Ensure patient ingests the medications in your presence			
	Enter additional relevant information and then click "Chart" in LCR			
	Perform hand hygiene when you exit the patient's room			

Appendix F

UNIT CLERK ALGORITHM



EMERGENT ISSUES (Manager, please update per unit's needs):

- **Critical Lab Value**
- **MERT response**

Appendix G

MESSAGE SHEET

MESSAGES

UNIT:_____

DATE: _____

NURSE	CALLER & CONTACT INFO	MESSAGE	TIME

Appendix H

NURSE MED PASS SIGN-UP SHEET

Date:
Please write name and check appropriate box when on and off med pass.

Nurse Name	**ON** Med Pass	**OFF** Med Pass

Appendix I

UNIT CLERK MED PASS SCRIPT

Overhead Medication Pass Script

Beginning of medication administration - time: _____

> "Attention [UNIT]. Medication administration has now begun. Please refrain from interrupting nurses at this time. Med pass time will end at _____. Thank you."

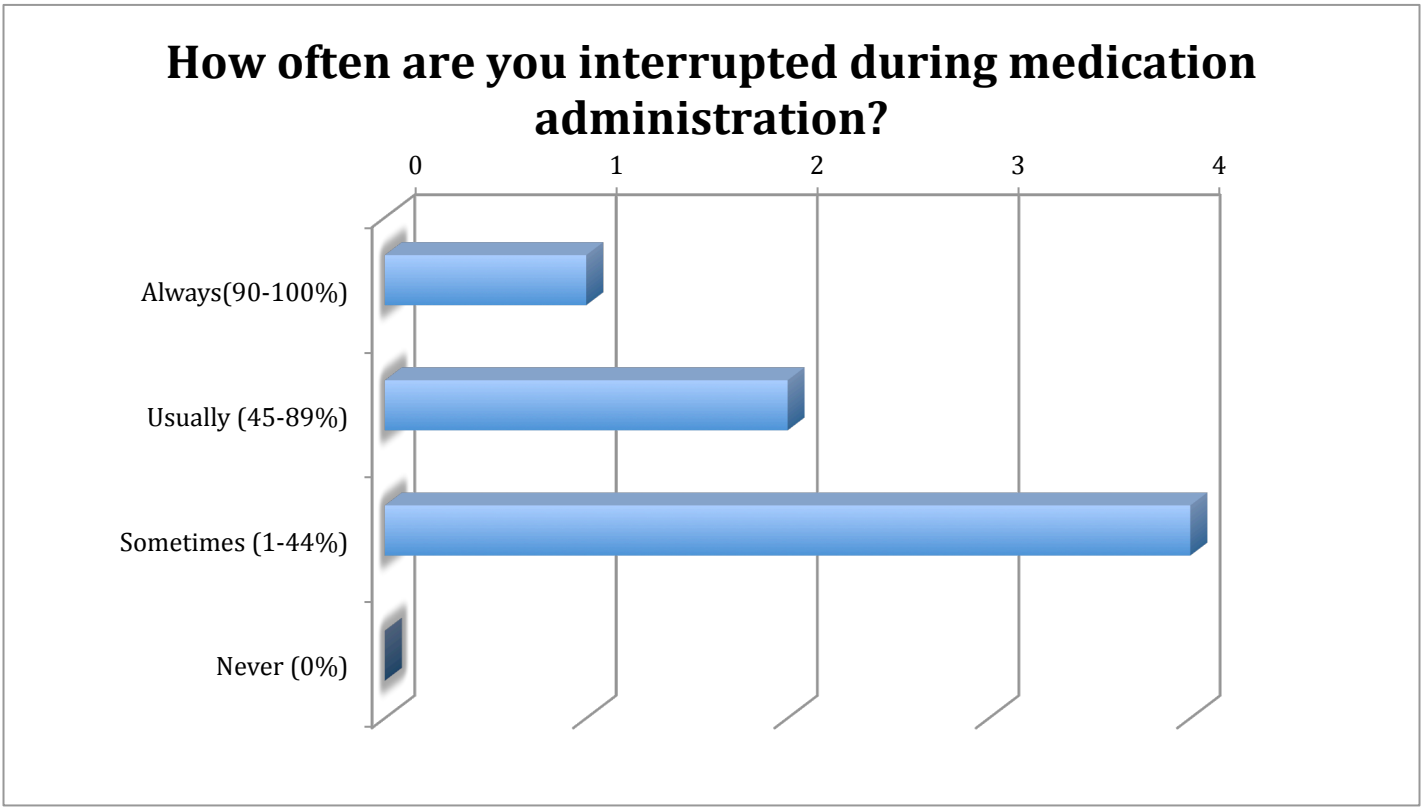
End of medication administration - time: _____

> "Attention [UNIT]. Medication administration has now ended. Thank you."

Appendix J

RESULTS

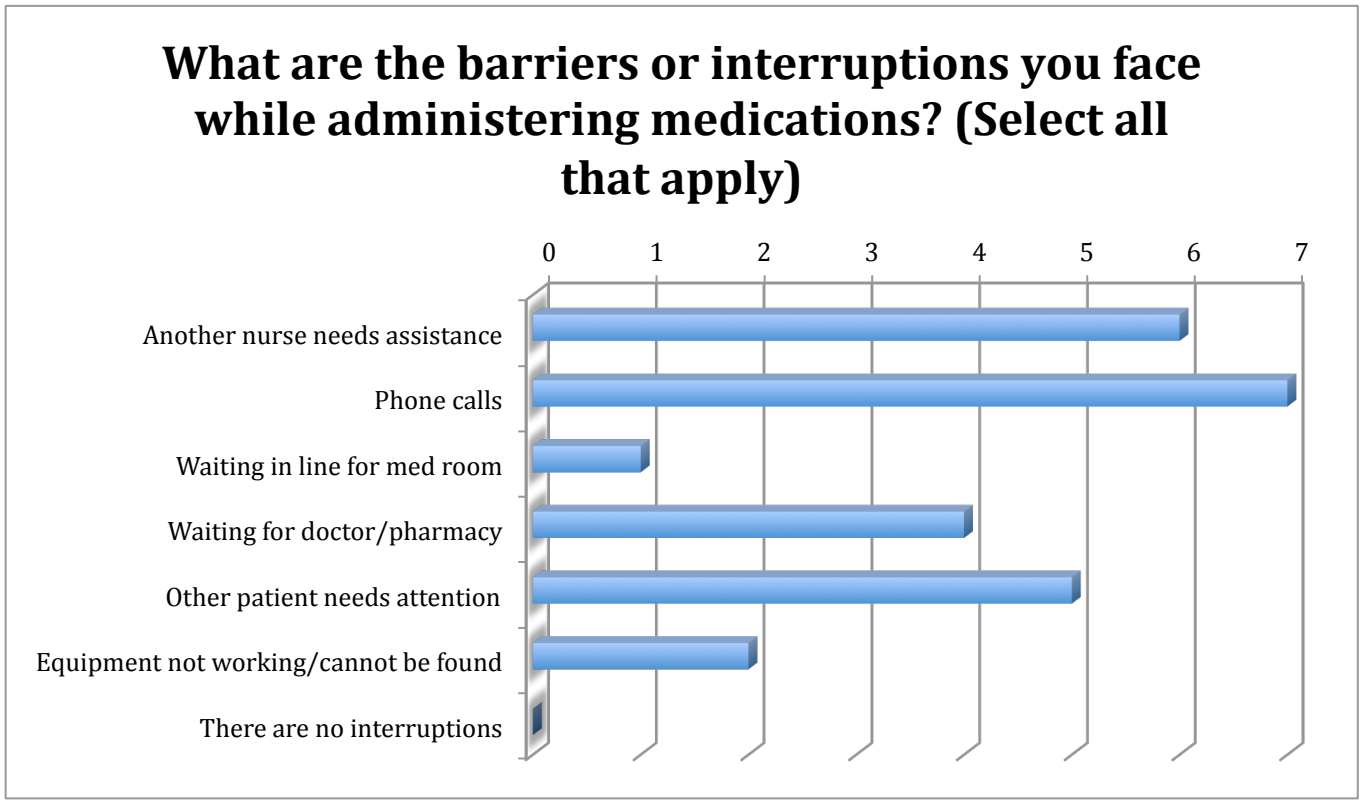
Results - Secondary Nurse Surveys



Appendix J

RESULTS

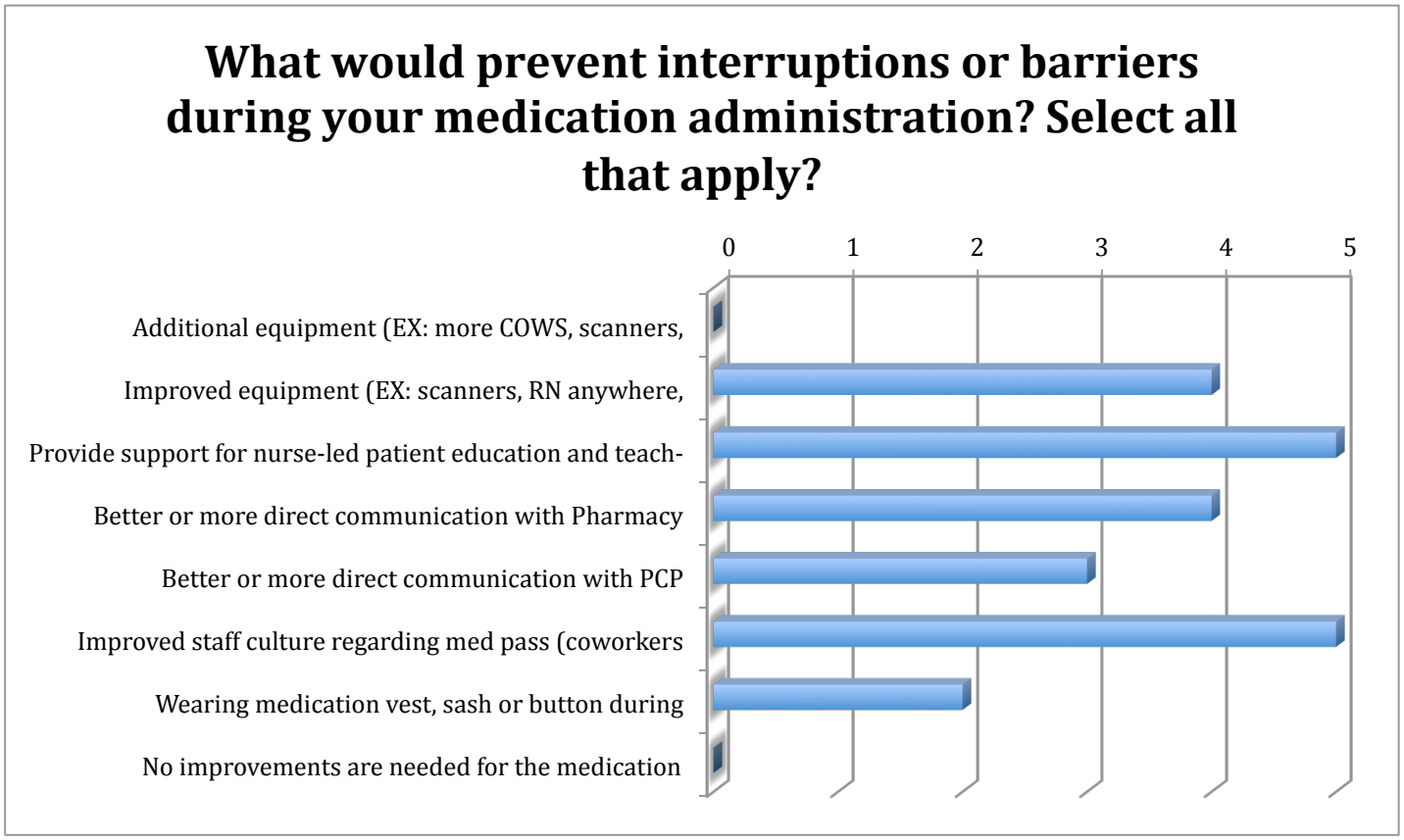
Results - Secondary Nurse Surveys



Appendix J

RESULTS

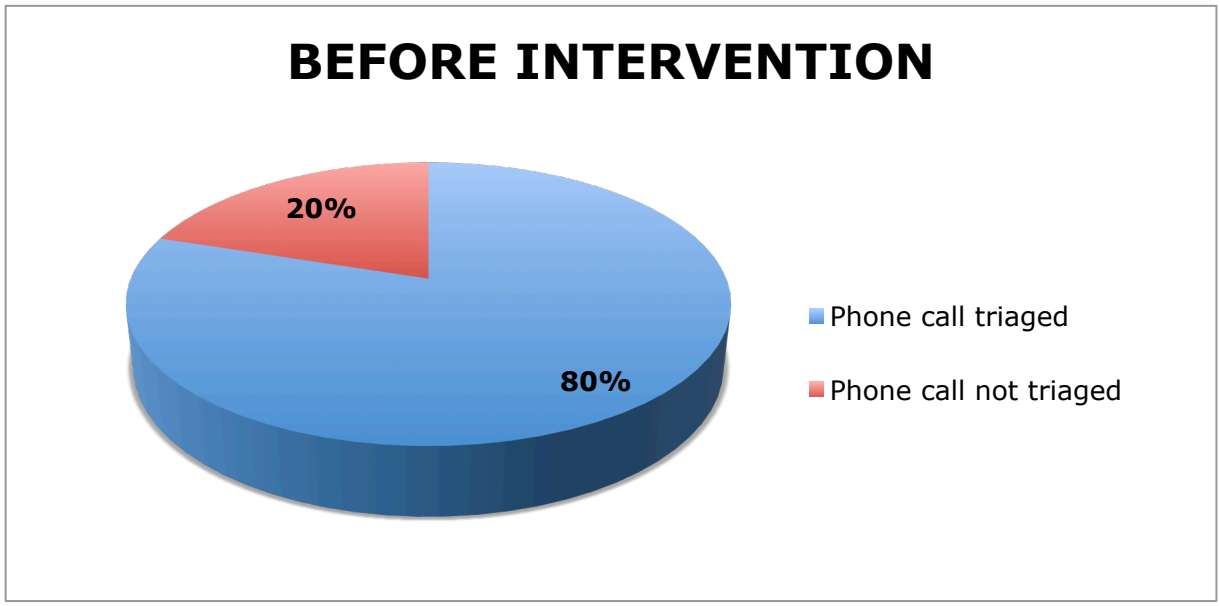
Results - Secondary Nurse Surveys



Appendix J

RESULTS

Results –Pre- and Post-Intervention

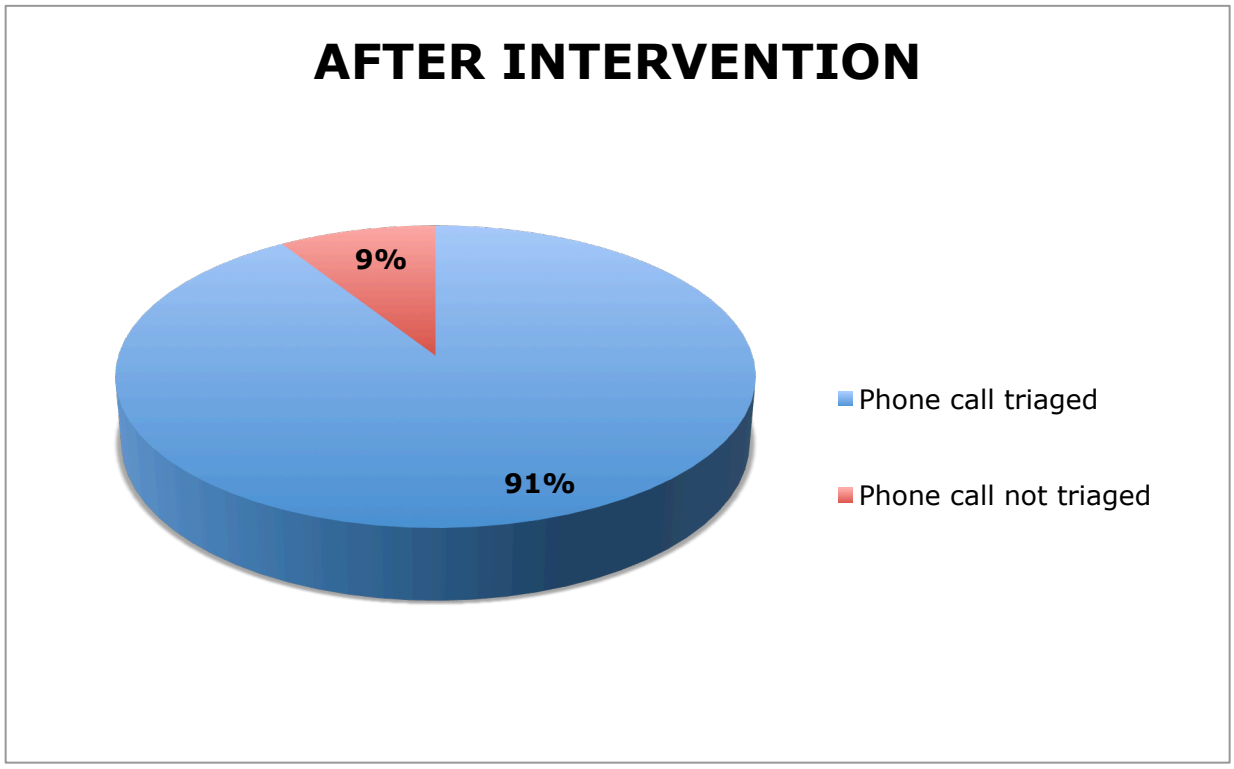


**Phone call triaged indicates that Unit Clerk processed the call according to the algorithm.*

Appendix J

RESULTS

Results –Pre- and Post-Intervention



**Phone call triaged indicates that Unit Clerk processed the call according to the algorithm.*

Appendix K

Pre- & Post-Intervention Unit Clerk Audit

Date:					
Clerk:					
Page	**Call light**	**Reason for page/call**	**Nurse necessary?**	**Was RN called/paged overhead**	**Total # of pages & call lights**